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09/910,707

07/20/2001

Kevin W. Schneider

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09/21/2005

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EXAMINER

SEFCHECK, GREGORY B

ART UNIT

PAPER NUMBER

2662

DATE MAILED: 09/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/910,707

Applicant(s)

SCHNEIDER ET AL.

Examiner

Gregory B. Sefcheck

Art Unit

2662

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 July 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6,9-24,27,29-36,38-40 and 42-44 is/are allowed.
- 6) ☒ Claim(s) 1-5,7,8,25,26,28,37 and 41 is/are rejected.
- 7) ☒ Claim(s) 45 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

- Applicant's Amendment filed 7/5/2005 is acknowledged.
- Claims 1, 6, 7, 9, 14, 17, 22, 25, 27-29, 33, 35, 37, 38, 41, and 42 have been amended.
- Submission of page 24 of the specification is acknowledged. The previous objection is withdrawn.
- Claims 1-45 remain pending.

Specification

1. The disclosure is objected to because of the following informalities:

Page 1 and throughout the rest of specification cross-references related co-pending U.S. Patent Applications (by Ballard et al. & Zakrezewski et al.) without providing the application numbers.

NOTE: In the Remarks of the present amendment filed 7/5/2005, the Applicant states that these numbers were provided in a preliminary amendment was filed 1/9/2002. The Office has no record of receiving such an amendment.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-5, 7-8, 25-26, 28, 37, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over White et al. (US006731678B1), hereafter White, in view of Kuboniwa (US006879591B1).

Regarding claim 1 and 41, White teaches a range-extending communication architecture for an asymmetrical digital subscriber line (ADSL) communication system (Figure 4; col. 3, lines 29-31; a range-extending communication architecture for an asymmetrical digital subscriber line (ADSL) communication svstem) comprising:

- A twisted pair wire pair 16 coupled between ATU-C 14 and ATU-R 12 (Figure 4; col. 5, lines 49-51; a communication link coupled between said upstream site and said downstream site);
- An ATU-C 14 (Figure 4; col. 6, lines 1-4; an upstream site transceiver), in which POTS Splitter 38 may be integrated to provide the 4KHz analog voice signal to voice switch 40 (Figure 4; col. 6, lines 6-10; a downstream plain old telephone svstem (POTS) signal), is connected to a DSLAM 28 which concentrates and/or switches the various signals and routes them to their appropriate destinations (Figure 4; col. 6, lines 1-2; operative to process

downstream ADSL signal provided by said upstream ADSL communication device with a downstream plain old telephone system (POTS) signal into a composite downstream modulated signal for transmission over said communication link to said downstream site), and

- An ATU-R 12 (Figure 4; col. 5, line 60; a downstream site transceiver), in which POTS Splitter 24 may be integrated to provide the 4KHz analog voice signal to an analog telephone 26 (Figure 4; col. 5, lines 64-67; a downstream plain old telephone system (POTS) signal; output said downstream POTS signal for application to a downstream POTS device), is linked to a PC 20 for the provision of high-speed Internet services, to a TV set top box 22 for the provision of video services (e.g. movies-on-demand or HDTV), and/or to any other type of broadband device (Figure 4; col. 5, lines 60-67; operative receive said composite downstream modulated signal transmitted over said communication link from said upstream site transceiver, and to output said downstream ADSL signal for application to said downstream ADSL communication device; modulation exclusive of downstream ADSL).

White does not explicitly disclose a composite downstream signal that is digitally modulated having a modulation exclusive of said downstream ADSL signal.

Kuboniwa discloses transferring voice over an ADSL line. Referring to Fig. 1, Kuboniwa shows that a composite downstream signal transmitted from ADSL modem 15 may comprise POTS and high speed digital data that are both digitally modulated in

Art Unit: 2662

subscriber side apparatus 12 (claim 1,41 - composite downstream signal that is digitally modulated having a modulation exclusive of said downstream ADSL signal).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the architecture of White by enabling a composite downstream ADSL signal having digitally modulated POTS, as shown by Kuboniwa. This would enable POTS signals to be transmitted over the subscriber line without requiring a POTS splitter (Kuboniwa; Col. 1, lines 7-11).

Regarding claim 2, White teaches at the telephone company central office, each ATU-C 14 is connected to a DSLAM 28 (Figure 4; col. 6, line 2; an upstream ADSL communication device which is couple to said upstream site transceiver over a first relatively short haul communication loop), which concentrates and/or switches the various data signals and routes them to their appropriate destination, such as an ATM switch 30, an IP router 32, or other broadband devices 36 (Figure 4; col. 6, lines 2-5; that is capable of supporting digital communications at a relatively high data rate, in excess of the data rate capable being supported by said communication link).

Regarding claims 3 and 26, White teaches at the telephone company central office, each ATU-C 14 is connected to a DSLAM 28 (Figure 4; col. 6, line 2; said upstream ADSL communication device is associated with digital subscriber line access multiplexer DSLAM).

Regarding claim 4, White teaches a twisted pair wire pair coupled between ATU-C and ATU-R (Figures 1 & 4; col. 1, lines 52-53; col. 5, lines 49-51; said communication link comprises single twisted conductive pair of the type employed for symmetric digital subscriber loop (SDSL) communications).

Regarding claim 5, White discloses that the transmission distance between ATU-R 12 and ATU-C 14 could be extended from 13.5 kft to approximately 15.922 kft with the use of three twisted wire pairs (Col. 7, lines 33-35). White further discloses that the use of four, five or even six twisted wire pairs would result in an even greater increased distance between ATU-R 12 and ATU-C 14 (Col. 7, lines 35-37). It is inherent in White's invention that the transmission distance between ATU-R 12 and ATU-C 14 could be extended, hence for every single twisted pair, to a length of order of twenty kilofeet so long as more twisted wire pairs are added (Col. 7, lines 35-37; single twisted conductive pair has a length on the order of twenty kilofeet to twenty-five kilofeet).

Regarding claims 25 and 37, White teaches a method of extending an asymmetrical digital subscriber line (ADSL) communication system (Figure 4; col. 3, lines 29-31; a method of extending an asymmetrical data subscriber line (ADSL) communication system), comprising the steps of:

- ATU-C 14 (Figure 4; col. 6, lines 1-2; an upstream site), in which POTS Splitter 38 may be integrated (Figure 4; col. 6, lines 6-10), processes the data received from DSLAM 28 (Figures 4 & 7; col. 6, lines 1-4, col. 8, lines 8-

Art Unit: 2662

11; processing a downstream ADSL signal provided by said upstream ADSL communication device) and the 4KHz analog voice signal from a Voice Switch 40 via POTS Splitter 38 (Figure 4; col. 6, lines 6-10; with a downstream plain old telephone system signal). ATU-C 14 transmits the composite upstream modulated signal to transmission over communication link 16 to ATU-C 14, PC 20, TV Set Top Box 22 and Telephone 26 (Figures 4 & 7; col. 10, lines 8-11; transmitting said composite upstream modulated signal over said a communication link to said downstream site), and

- ATU-R 12 (Figure 4; col. 5, line 60; a downstream site), in which POTS Splitter 24 may be integrated (Figure 4; col. 5, lines 64-67), receives the composite modulated signal from ATU-C 14 via communication link 16 (Figures 4 & 8; col. 9, lines 15-17; receiving said composite downstream modulated signal that has been transmitted over said communication link from said upstream site), routes the 4KHz analog voice signal to an analog telephone 26 via POTS Splitter 24 (Figure 4; col. 5, lines 64-67; with an extracting therefrom said downstream POTS signal for deliver to a downstream POTS device), the high-speed internet service to PC 20 and the video services to aTV set top box (Figure 4; col. 5, lines 60-67; and said downstream ADSL signal for delivery to said downstream ADSL communication device).

White does not explicitly disclose a composite downstream signal that is digitally modulated having a modulation exclusive of said downstream ADSL signal.

Kuboniwa discloses transferring voice over an ADSL line. Referring to Fig. 1, Kuboniwa shows that a composite downstream signal transmitted from ADSL modem 15 may comprise POTS and high speed digital data that are both digitally modulated in subscriber side apparatus 12 (claim 7 - composite downstream signal that is digitally modulated having a modulation exclusive of said downstream ADSL signal).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the architecture of White by enabling a composite downstream ADSL signal having digitally modulated POTS, as shown by Kuboniwa. This would enable POTS signals to be transmitted over the subscriber line without requiring a POTS splitter (Kuboniwa; Col. 1, lines 7-11).

Regarding claims 7 and 28, White teaches that POTS Splitter 24 may be integrated within ATU-R 12 (Figure 4; col. 5, lines 64-67) ATU-R 12 (col. 5, line 60; a downstream site transceiver) through RX 44, receives the data from PC 20 for the provision of high-speed internet service, a TV set top box 22 signal for the provision of video services (Figure 4; col. 5, lines 60-67; operative to process an upstream ADSL signal provided by said downstream ADSL communication device) and the 4KHz analog voice signal from an analog telephone 26 via POTS Splitter 24 (Figure 4, col. 5, lines 64-67; with an upstream POTS signal provided by said downstream POTS device) and then transmits, through TX 46, the composite upstream modulated

signal to transmission over communication link 16 to ATU-C 14 (Figures 4 & 8; col. 10, lines 14-20; a composite upstream modulated signal for transmission over said communication link to said upstream site transceiver).

White further teaches that POTS Splitter 38 may be integrated within ATU-R 14 (Figure 4; col. 6, lines 6-10). ATU-C 14 (Figure 4; col. 6, lines 1-2; an upstream site transceiver), through RX 48, receives the upstream modulated signal from ATU-R 12 via the communication link 16 (Figures 4; operative to receive the composite upstream modulated signal transmitted over said communication link from said downstream site transceiver). ATU-C 14 then routes the POTS signal to Voice Switch 40 (Figure 4; col. 6, lines 7-10; output to said upstream POTS signal for deliver to an upstream POTS device), and, through a DSLAM 28, routes the set top box signal and PC internet service to their appropriate destinations (Figure 4; col. 6, lines 1-5; output said upstream ADSL signal for application to said upstream ADSL communication device).

White does not explicitly disclose a composite downstream signal that is digitally modulated having a modulation exclusive of said downstream ADSL signal.

Kuboniwa discloses transferring voice over an ADSL line. Referring to Fig. 1, Kuboniwa shows that a composite downstream signal transmitted from ADSL modem 15 may comprise POTS and high speed digital data that are both digitally modulated in subscriber side apparatus 12 (claim 7 - composite downstream signal that is digitally modulated having a modulation exclusive of said downstream ADSL signal).

Art Unit: 2662

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the architecture of White by enabling a composite downstream ADSL signal having digitally modulated POTS, as shown by Kuboniwa. This would enable POTS signals to be transmitted over the subscriber line without requiring a POTS splitter (Kuboniwa; Col. 1, lines 7-11).

Regarding claim 8, White teaches that POTS Splitter 24 may be integrated within the ATU-R 12, along with RX 44 and TX 46 (Figure 4; col. 5, lines 64-67; downstream ADSL according communication device is coupled to said downstream site transceiver over second relatively short haul communication loop, that is capable of supporting digital communications at a relatively high data rate in excess of the data rate capable of being supported by said communication link).

Allowable Subject Matter

4. Claims 6, 9-24, 27, 29-36, 38-40 and 42-44 are allowed. Allowable subject matter indicated in the Office Action filed 4/6/2005 has been rewritten into independent claims 6, 9, 14, 17, 22, 29, 33, 35, 38, and 42.

5. Claim 45 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

6. Applicant's arguments with respect to claims 1, 25, and 37 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Milbrandt et al. (US 20020191777A1) discloses a twisted pair termination using vacuum microelectronic circuitry
- Hjartarson et al. (US 20020027900A1) discloses a system and method for programmable spectrum management

- De Clercq et al. (US 20020009133A1) discloses a method and apparatus for providing an all digital loop with power-optimized mode
- Silberman et al. (US006829246B2) discloses a system and method for extending the range of xDSL services
- Sjoberg et al. (US006925091B1) discloses a message transmission system

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory B. Sefcheck whose telephone number is 571-272-3098. The examiner can normally be reached on Monday-Friday, 8:00am-4:30pm.

Art Unit: 2662

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on 571-272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GBS
9-16-2005



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